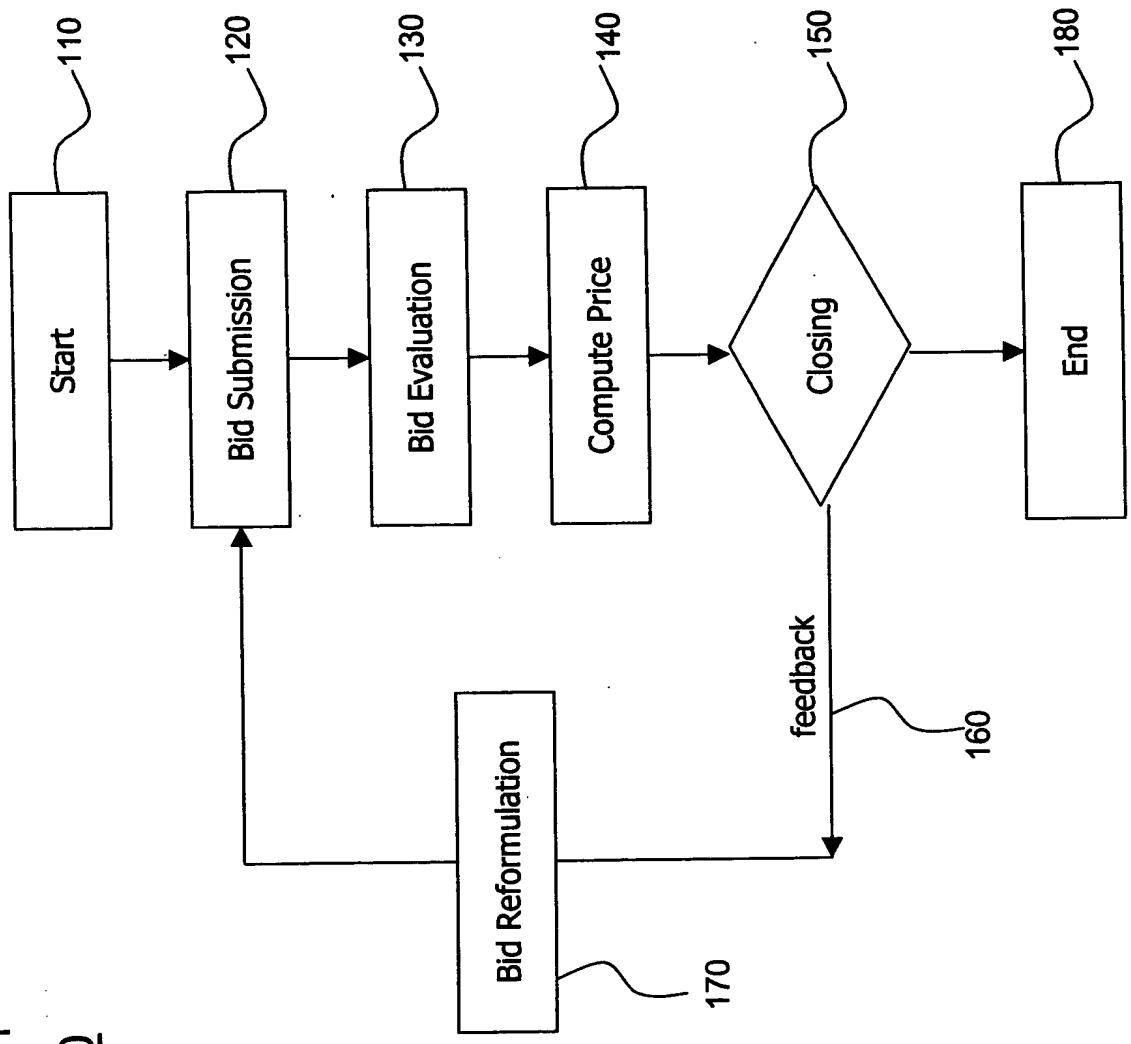

Start
110
Bid Submission
120
Bid Evaluation
130
Compute Price
140
Closing
150
End
180
feedback
160
Bid Reformulation
170

Figure 1

100

Figure 2

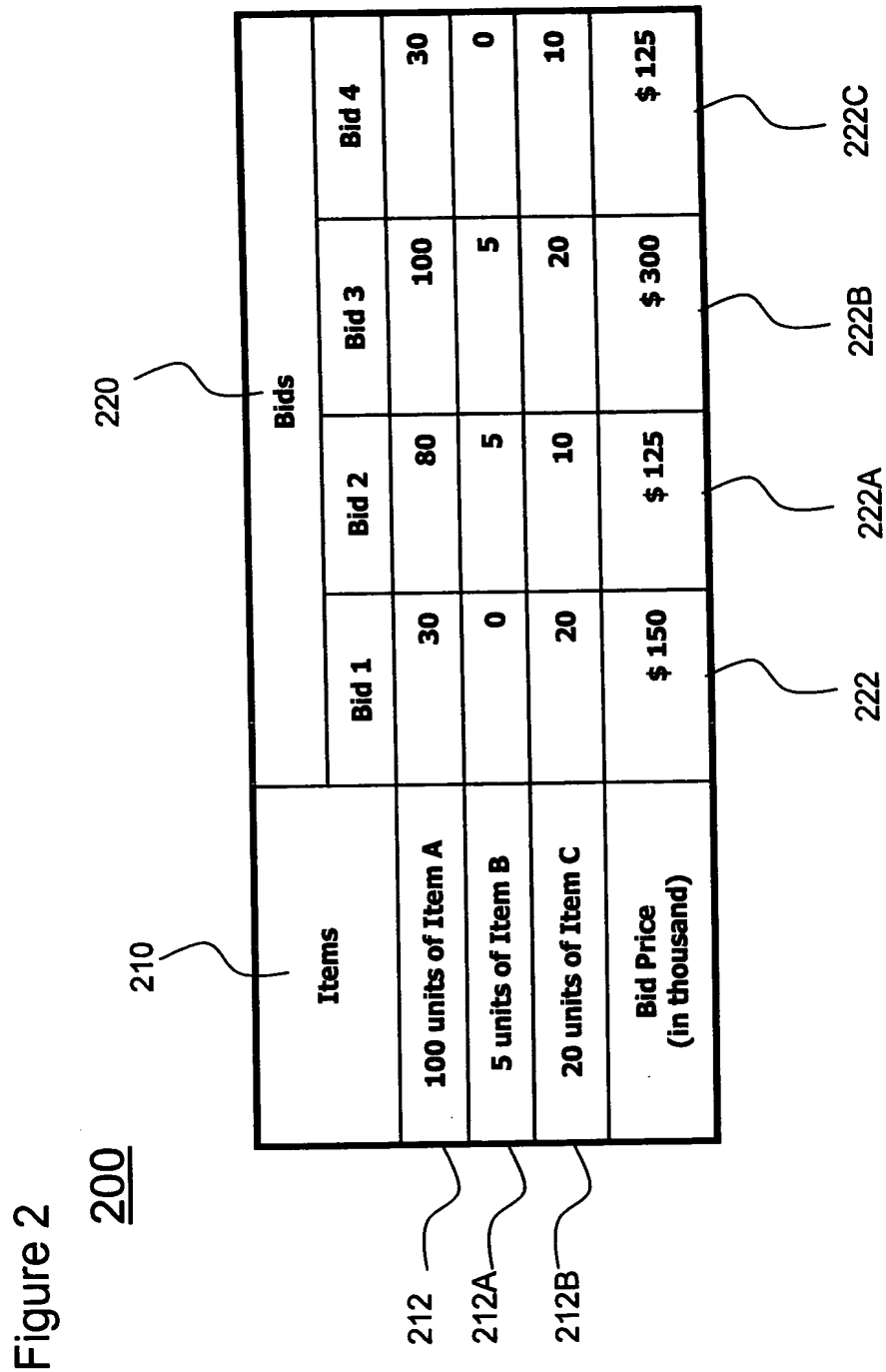

200
210
220
Items
Bids
Bid 1
Bid 2
Bid 3
Bid 4
100 units of Item A
30
80
100
30
5 units of Item B
0
5
5
0
20 units of Item C
20
10
20
10
Bid Price (in thousand)
$ 150
$ 125
$ 300
$ 125
212
212A
212B
222
222A
222B
222C

Figure 3

300

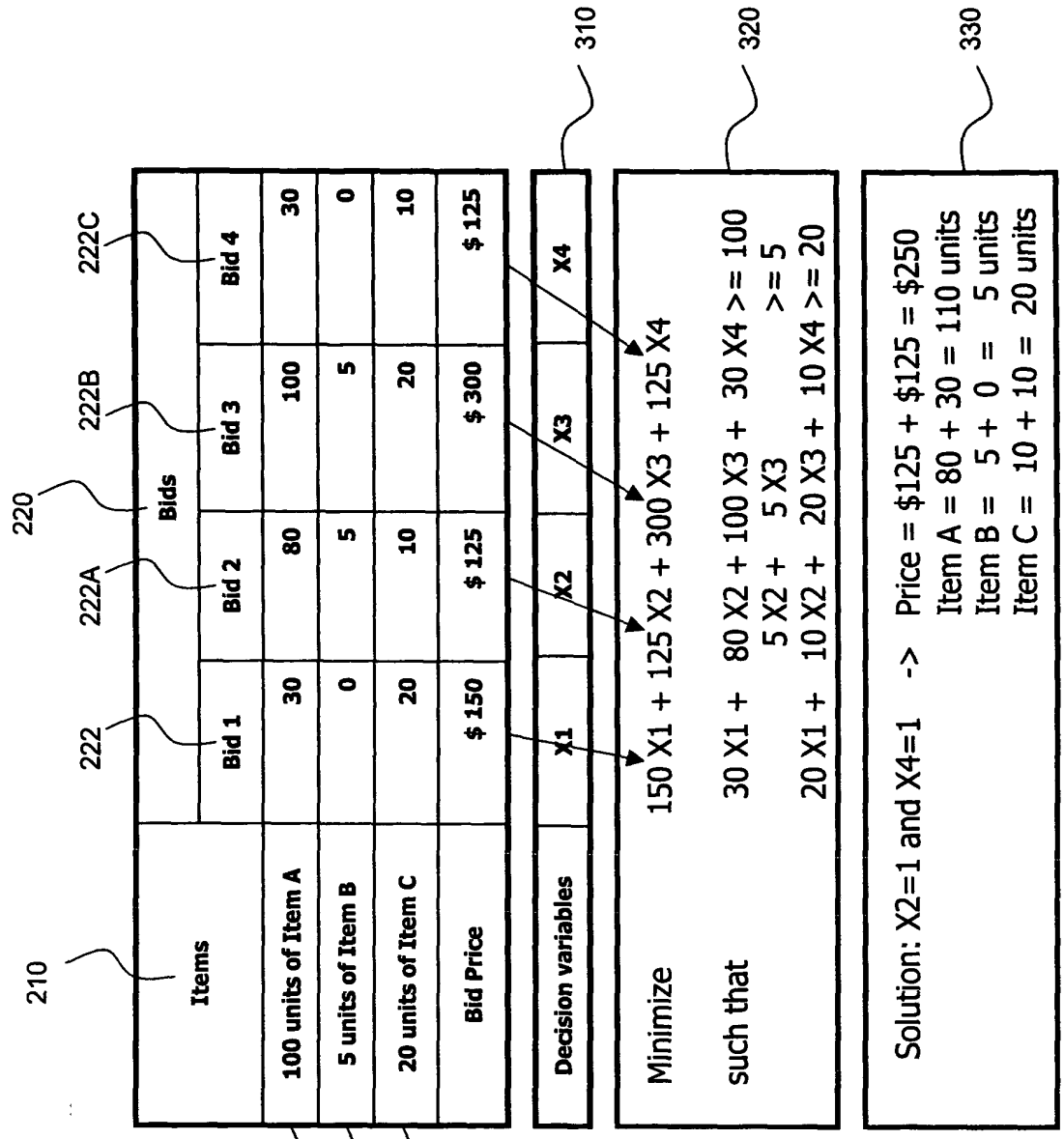

210
220
222
222A
222B
222C
Items
Bids
Bid 1
Bid 2
Bid 3
Bid 4
100 units of Item A
30
80
100
30
5 units of Item B
0
5
5
0
20 units of Item C
20
10
20
10
Bid Price
$ 150
$ 125
$ 300
$ 125
212
212A
212B
310
Decision variables
X1
X2
X3
X4
320
Minimize
150 X1 + 125 X2 + 300 X3 + 125 X4
such that
30 X1 + 80 X2 + 100 X3 + 30 X4 >= 100
5 X2 + 5 X3 >= 5
20 X1 + 10 X2 + 20 X3 + 10 X4 >= 20
330
Solution: X2=1 and X4=1 -> Price = $125 + $125 = $250
Item A = 80 + 30 = 110 units
Item B = 5 + 0 = 5 units
Item C = 10 + 10 = 20 units

Figure 4

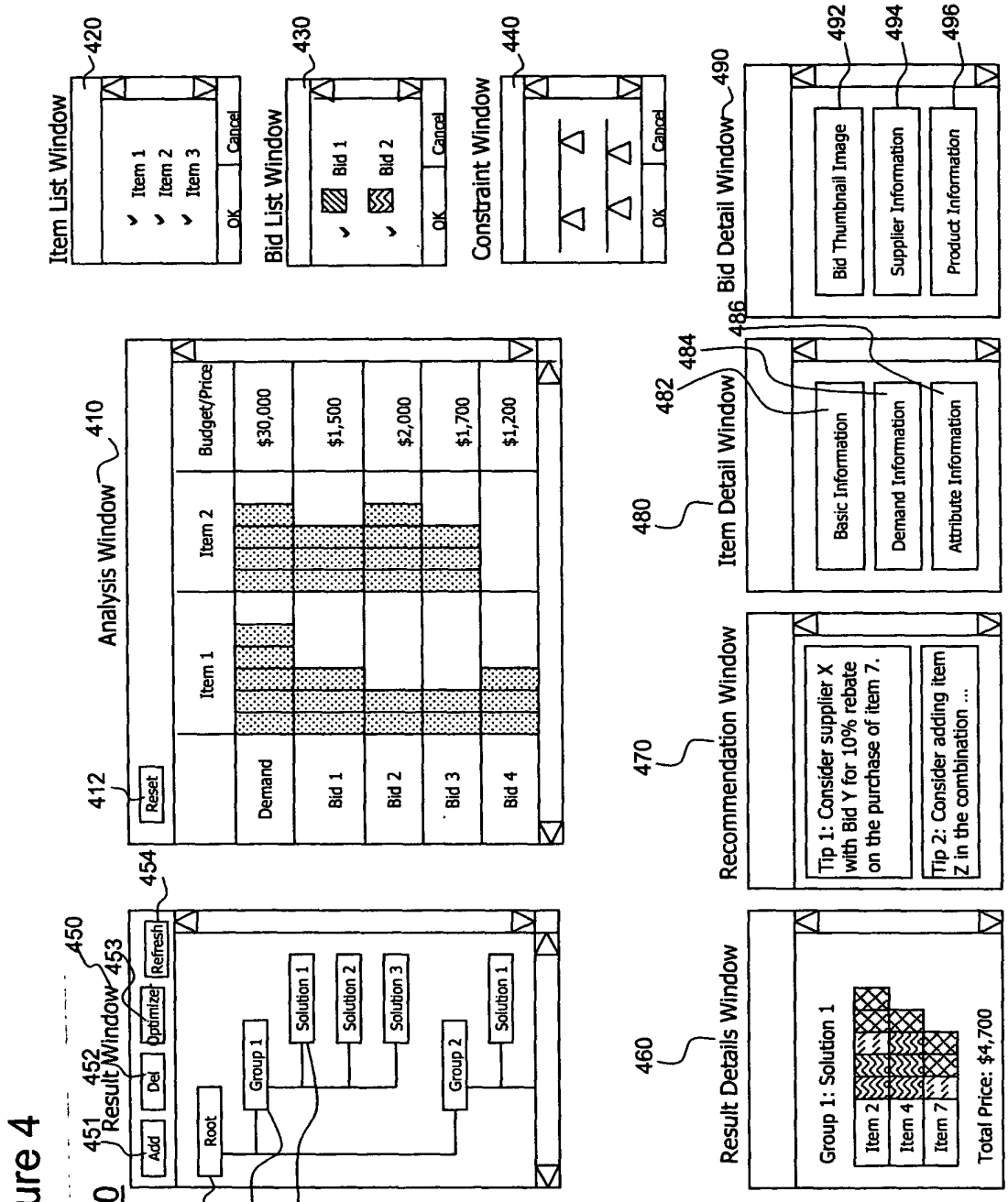

400
Result Window
451
452
453
454
450
Add
Del
Optimize
Refresh
Root
Group 1
Group 2
Solution 1
Solution 2
Solution 3
Solution 1
455
456
457
Item List Window
420
Item 1
Item 2
Item 3
OK
Cancel
Bid List Window
430
Bid 1
Bid 2
OK
Cancel
Constraint Window
440
OK
Cancel
Analysis Window
410
412
Reset
Demand
Item 1
Item 2
Budget/Price
Bid 1
$30,000
$1,500
Bid 2
$2,000
Bid 3
$1,700
Bid 4
$1,200
Bid Detail Window
490
492
494
496
Bid Thumbnail Image
Supplier Information
Product Information
486
484
482
480
Item Detail Window
Basic Information
Demand Information
Attribute Information
470
Recommendation Window
Tip 1: Consider supplier X with Bid Y for 10% rebate on the purchase of item 7.
Tip 2: Consider adding item Z in the combination ...
460
Result Details Window
Group 1: Solution 1
Item 2
Item 4
Item 7
Total Price: $4,700

Figure 5

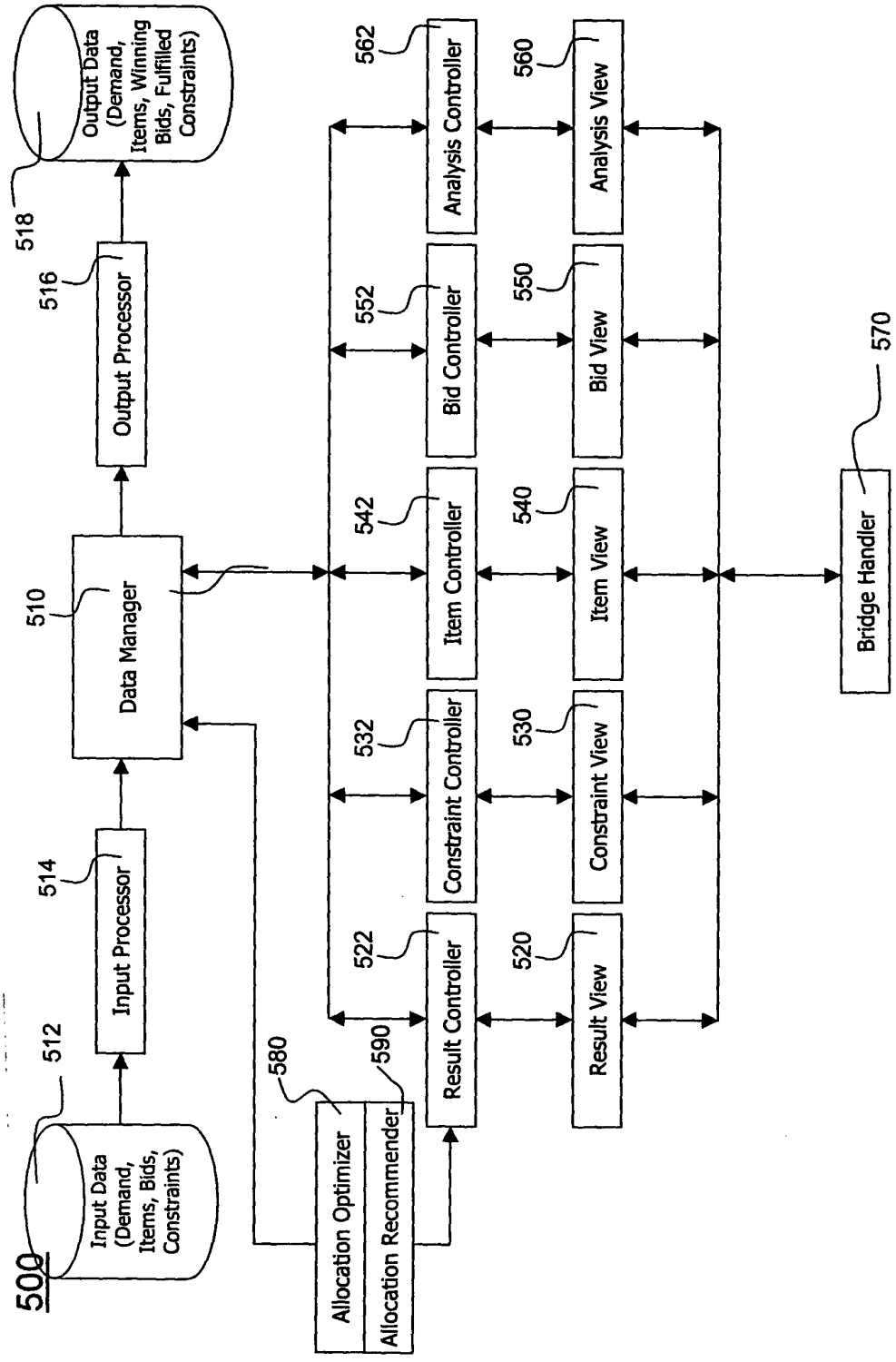
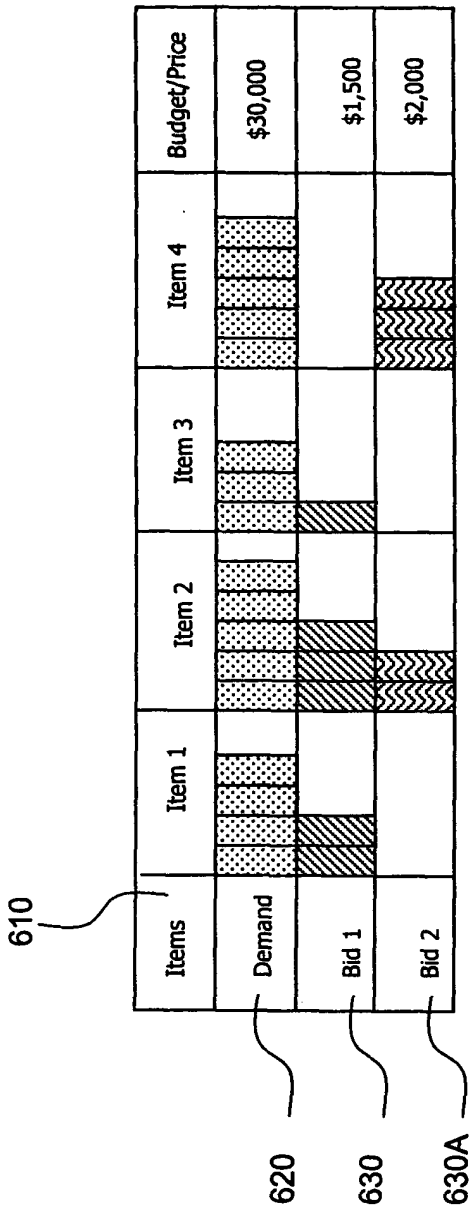
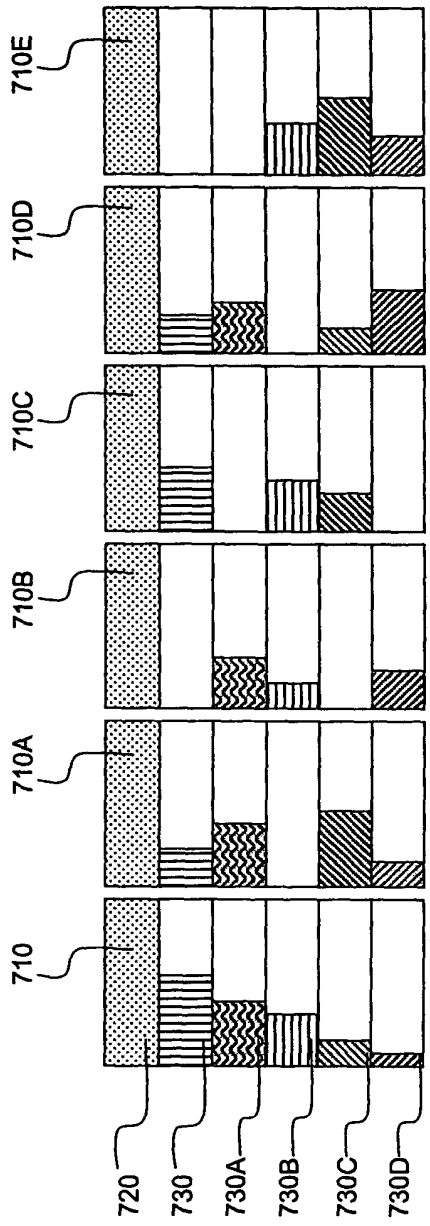

500
Input Data (Demand, Items, Bids, Constraints)
512
Input Processor
514
Data Manager
510
Output Processor
516
Output Data (Demand, Items, Winning Bids, Fulfilled Constraints)
518
Allocation Optimizer
Allocation Recommender
580
590
Result Controller
522
Constraint Controller
532
Item Controller
542
Bid Controller
552
Analysis Controller
562
Result View
520
Constraint View
530
Item View
540
Bid View
550
Analysis View
560
Bridge Handler
570

Figure 6
600


610
Items
Item 1
Item 2
Item 3
Item 4
Budget/Price
Demand
$30,000
Bid 1
$1,500
Bid 2
$2,000
620
630
630A



700

Figure 7

Figure 8

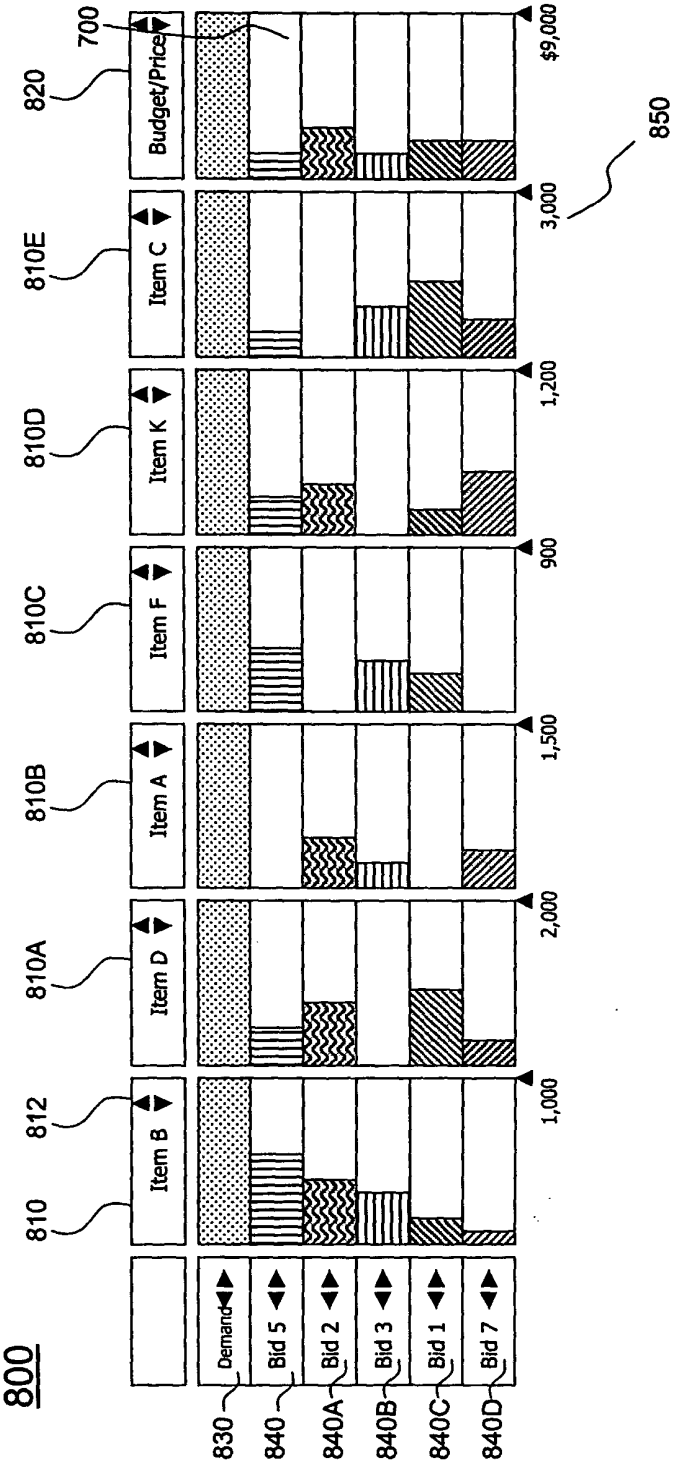
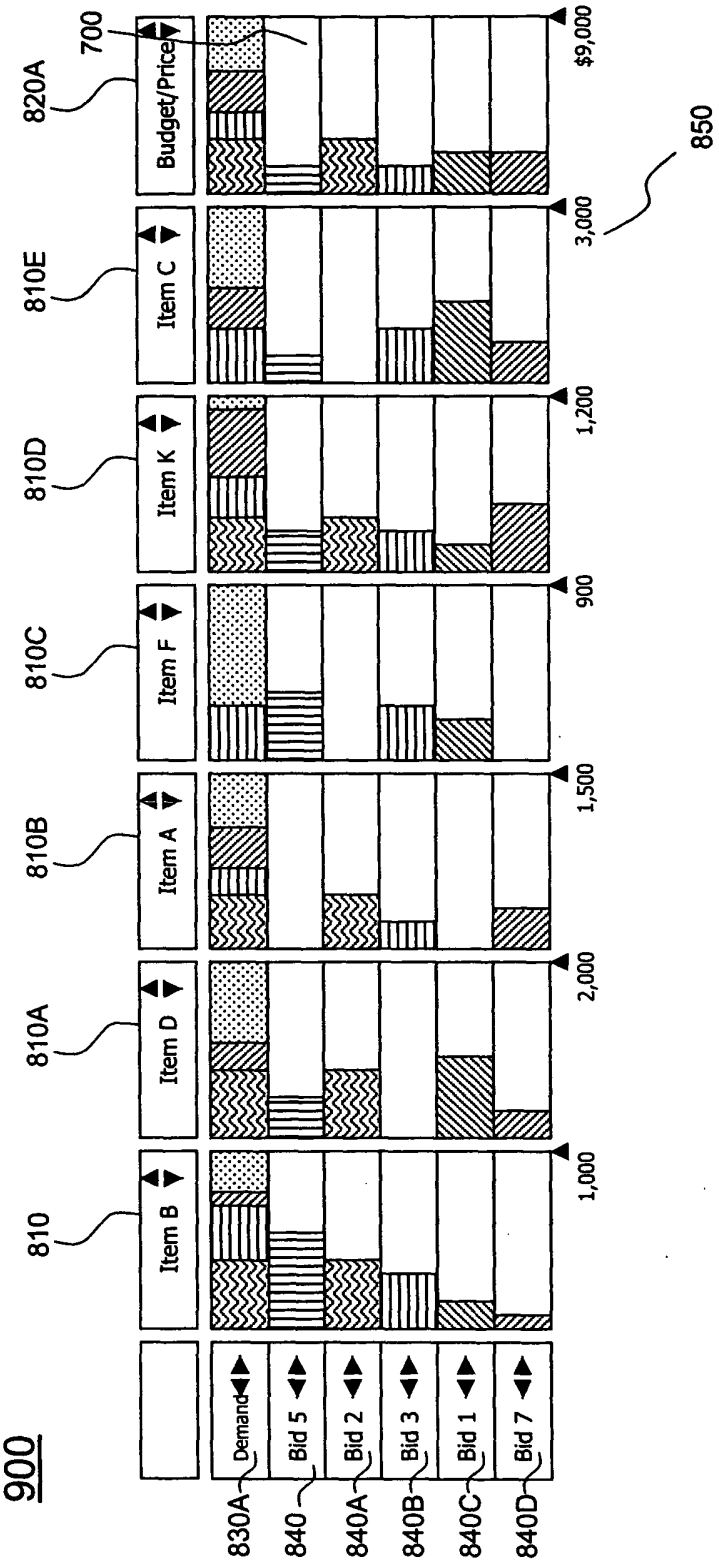

800
810
812
820
700
850
Item B
Item D
Item A
Item F
Item K
Item C
Budget/Price
1,000
2,000
1,500
900
1,200
3,000
$9,000
Demand
Bid 5
Bid 2
Bid 3
Bid 1
Bid 7
830
840
840A
840B
840C
840D

Figure 9


900
810
820A
700
810A
810B
810C
810D
810E
850
Item B
Item D
Item A
Item F
Item K
Item C
Budget/Price
1,000
2,000
1,500
900
1,200
3,000
$9,000
Demand
Bid 5
Bid 2
Bid 3
Bid 1
Bid 7
830A
840
840A
840B
840C
840D

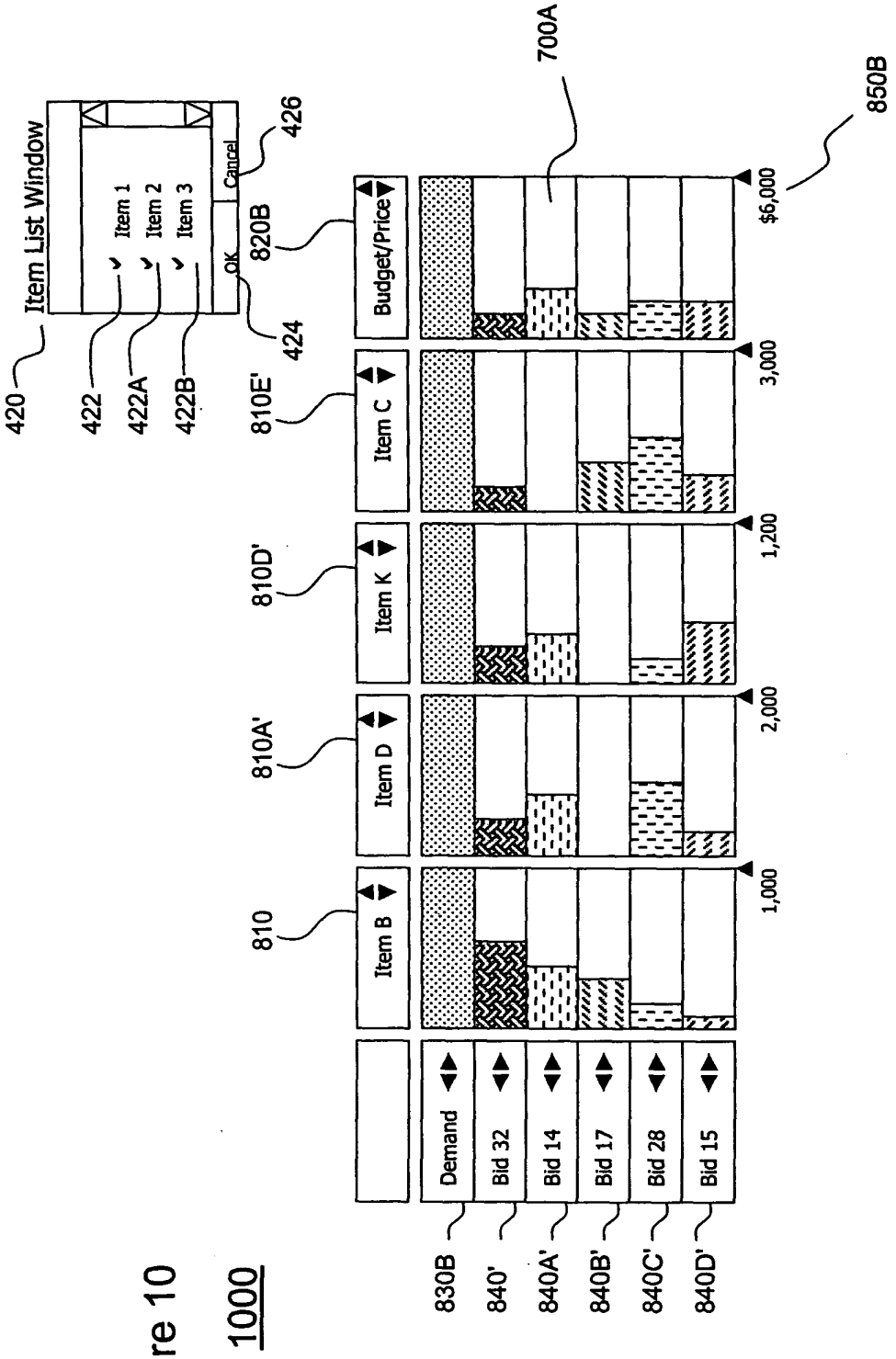


Figure 10

1000

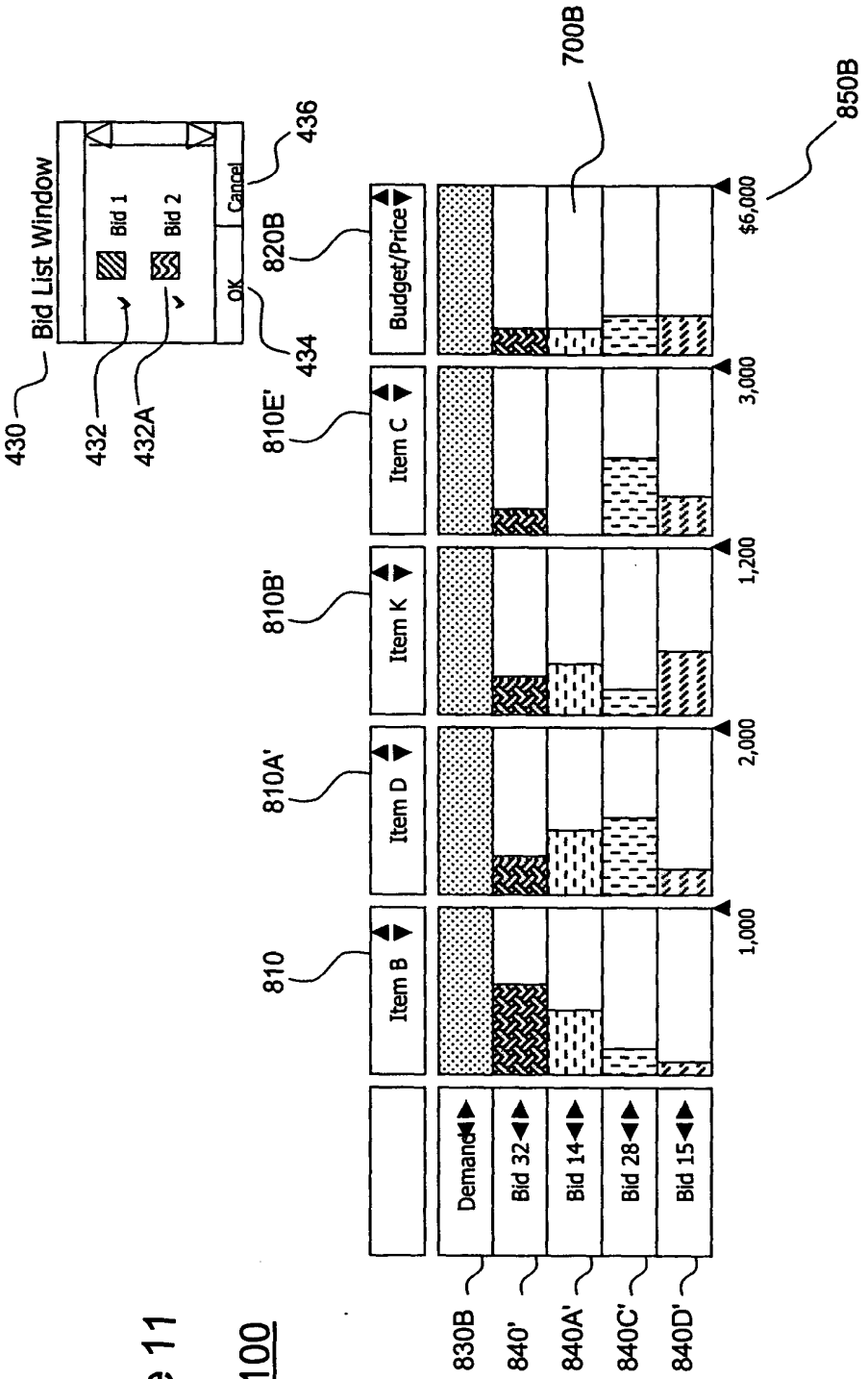

1100
Figure 11
Bid List Window
Bid 1
Bid 2
Cancel
OK
430
432
432A
434
436
810
810A'
810B'
810E'
820B
700B
850B
Item B
Item D
Item K
Item C
Budget/Price
1,000
2,000
1,200
3,000
$6,000
Demand
Bid 32
Bid 14
Bid 28
Bid 15
830B
840'
840A'
840C'
840D'

Figure 12

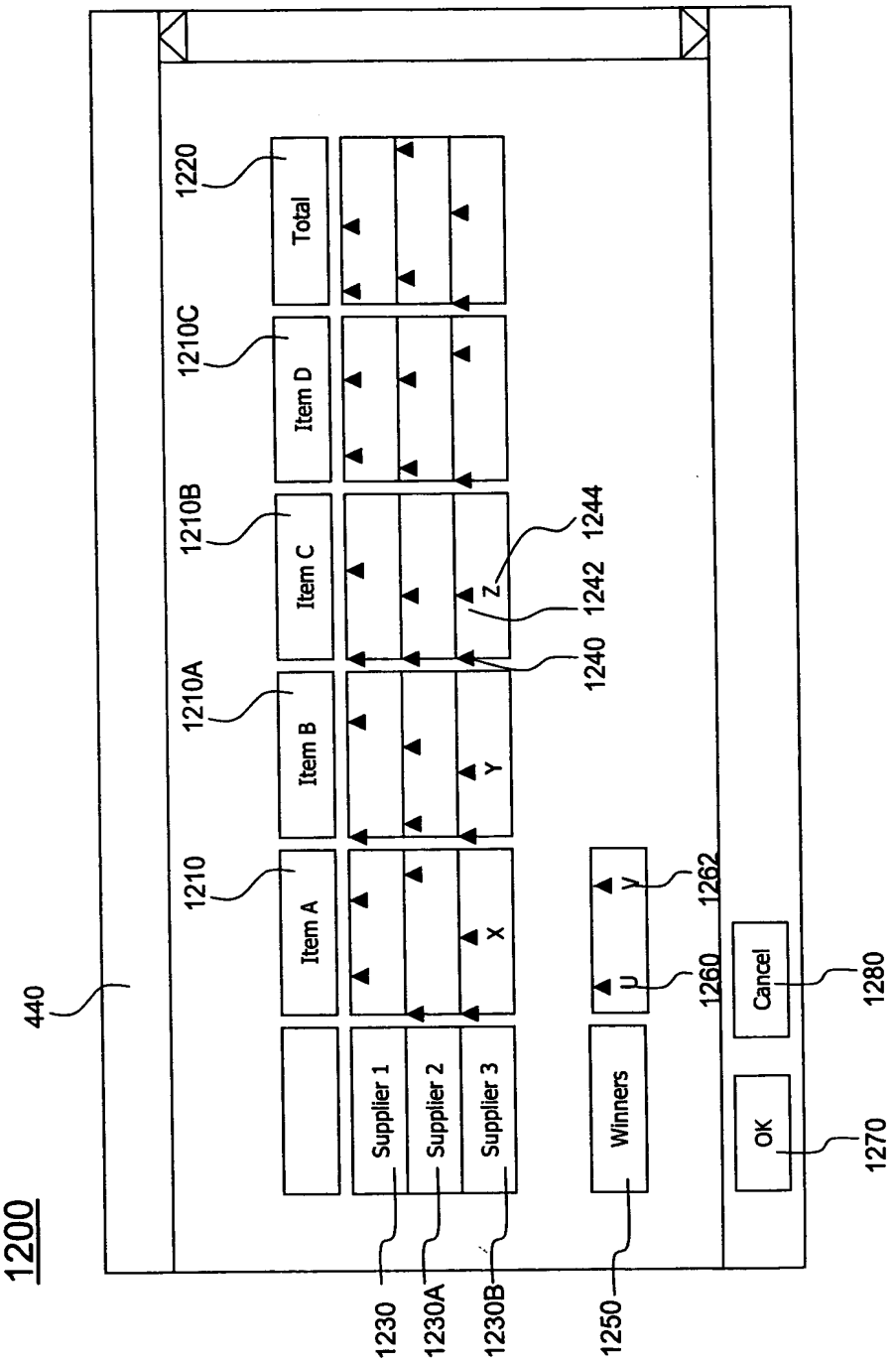

1200
440
1210
1210A
1210B
1210C
1220
Item A
Item B
Item C
Item D
Total
X
Y
Z
1240
1242
1244
Supplier 1
Supplier 2
Supplier 3
1230
1230A
1230B
Winners
μ
γ
1250
1260
1262
Cancel
1280
OK
1270

Figure 13

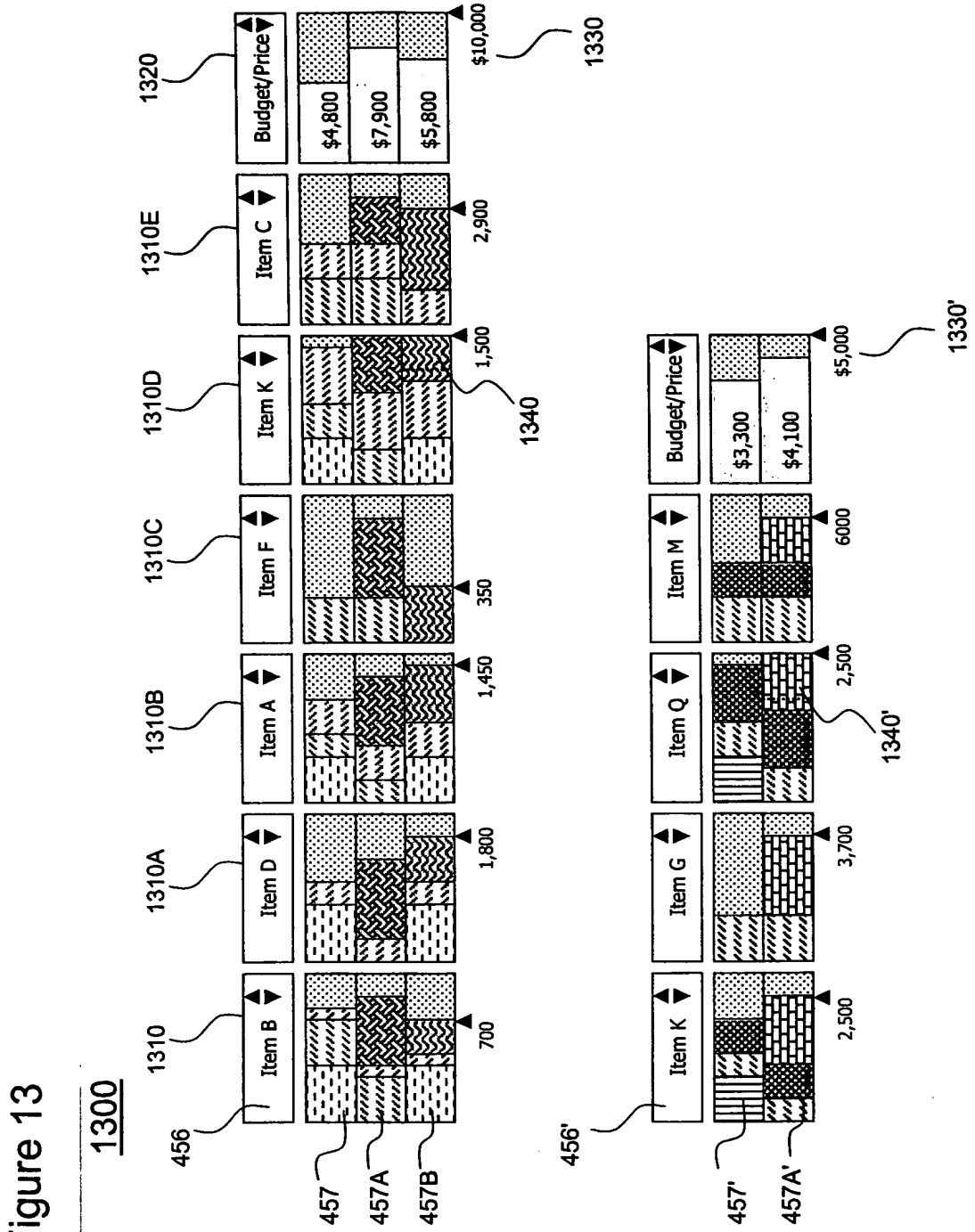
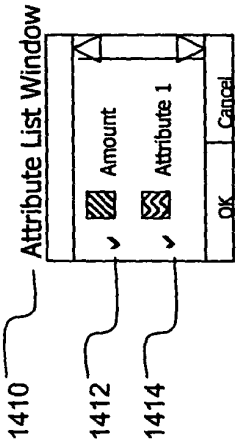
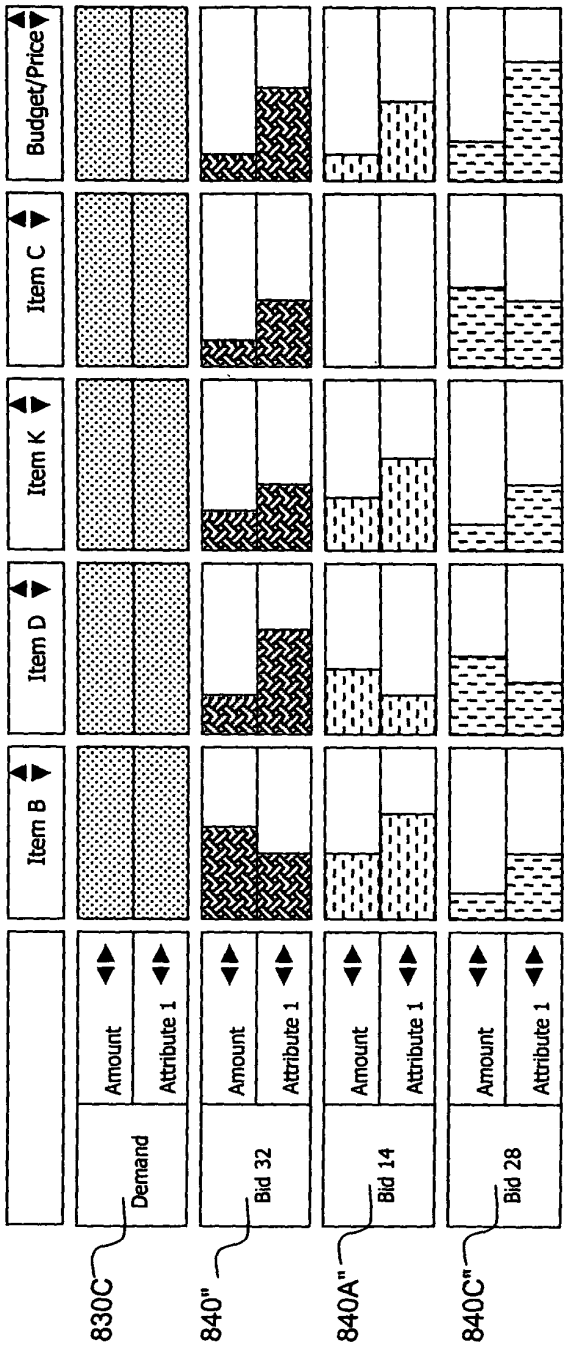
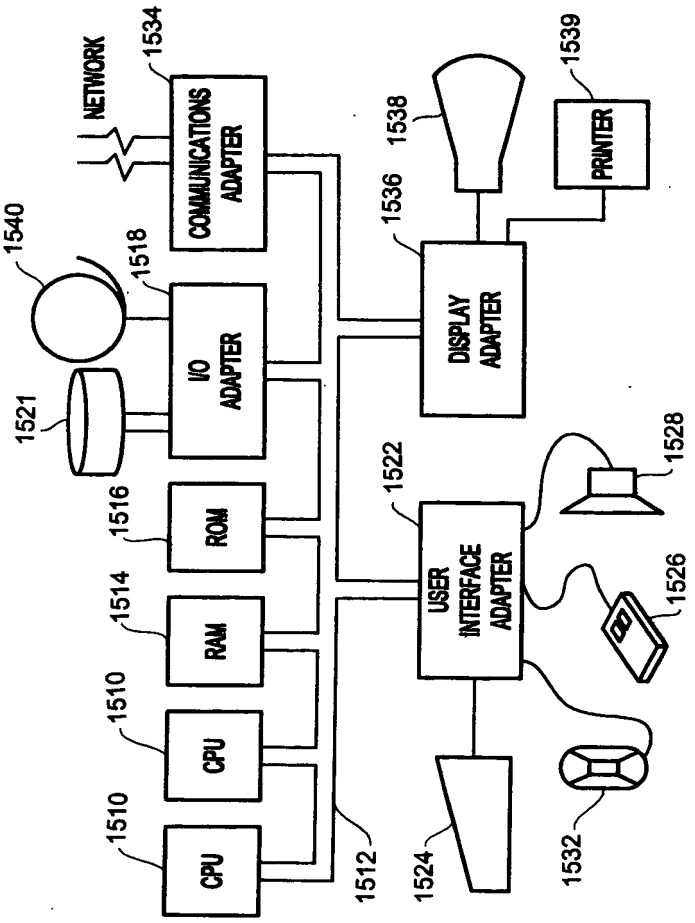

1300
1310
1310A
1310B
1310C
1310D
1310E
1320
Item B
Item D
Item A
Item F
Item K
Item C
Budget/Price
456
457
457A
457B
700
1,800
1,450
350
1,500
2,900
$4,800
$7,900
$5,800
$10,000
1330
1340
456'
Item K
Item G
Item Q
Item M
Budget/Price
457'
457A'
2,500
3,700
2,500
6000
$3,300
$4,100
$5,000
1340'
1330'

Figure 14

1400

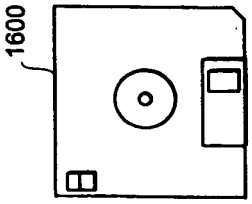






1500

Figure 15



1600

Figure 16